

ORIGINAL

SBC Telecommunications, Inc.



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JUN 28 2001

June 28, 2000

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, D.C. 20554


EX PARTE OR LATE FILED

Re: Ex Parte Presentation  
CC Docket 96-98  
CC Docket ~~98-747~~ 98-147

Dear Ms. Salas:

On June 27, 2001, representatives of SBC Communications Inc. met with Michelle Carey, Chief of the Policy and Program Planning Division of the Common Carrier Bureau, as well as other Bureau and Commission representatives. A list of attendees is attached. At the meeting, we discussed the technical aspects of Broadband Passive Optical Networks (BPONs), as set out in the attached materials.

Respectfully submitted,

  
William A. Brown  
Senior Counsel – External Affairs/FCC  
SBC Telecommunications, Inc.

1401 I Street, NW, Suite 1100  
Washington, DC 20005  
(202) 326-8904 – Voice  
(202) 408-8745 – FAX  
(703) 577-8400 – Wireless

Attachments

cc: James Smith

No. of Copies rec'd  
List ABCDE

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## ATTENDEE'S LIST

### For SBC Communications Inc.:

Christopher Rice	SBC
James Smith	SBC
William A. Brown	SBC
David Maze	SBC
Joseph Cosgrove	SBC

### For Federal Communications Commission:

Paul Marrangoni	Office Engineering Technology/ Network Technology Division
Shanti Gupta	Office Engineering Technology/ Network Technology Division
Aaron Goldberger	Common Carrier Bureau/Policy
Rodney McDonald	Common Carrier Bureau/ Network Services Division
Dennis Johnson	Common Carrier Bureau/ Network Services Division
Sherry Herauf	Common Carrier Bureau/Audits
Brent Olson	Common Carrier Bureau/Policy
Elizabeth Yockus	Common Carrier Bureau/Policy
Jessica Rosenworcel	Common Carrier Bureau/Policy
Michelle Carey	Common Carrier Bureau/Policy
Kathy Farroba	Common Carrier Bureau/Policy
Uzoma Onyeije	Common Carrier Bureau/Policy
Kimberly Cook	Common Carrier Bureau/Policy
William Kehoe	Common Carrier Bureau/Policy
Bill Dever	Common Carrier Bureau/Policy
Christopher Libertelli	Common Carrier Bureau
Glen Reynolds	Common Carrier Bureau
Anne Brauncher	Common Carrier Bureau/Policy



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# Broadband Passive Optical Networks (BPONs)

**Christopher T. Rice**  
**Senior Vice President - Network Planning & Engineering**  
**SBC Communications Inc.**



# Outline

- 
- Broadband Vision
  - Why Fiber?
  - Why PONs?
  - BPON Architecture
  - SBC Current BPON Plans



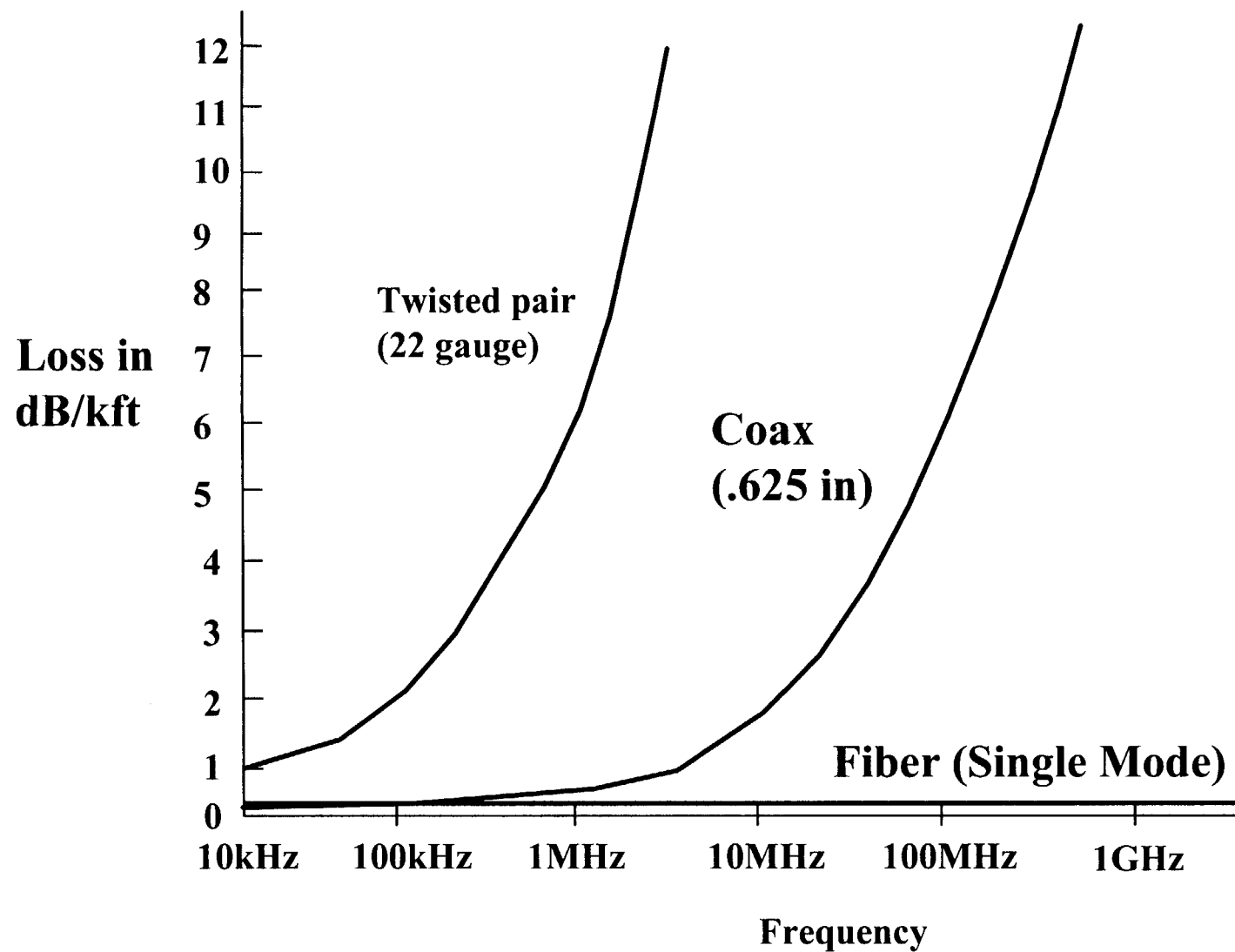
# Broadband Vision

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- Integrated voice, data, video services
- Potential applications determined by endpoint electronics
- Standards-based architectures and technologies
  - Supported by multiple vendors
  - Interoperable
- High reliability
- High flexibility
  - Increase overall bandwidth
  - Dynamic allocation of bandwidth
  - Scalability
- Economical installation & maintenance

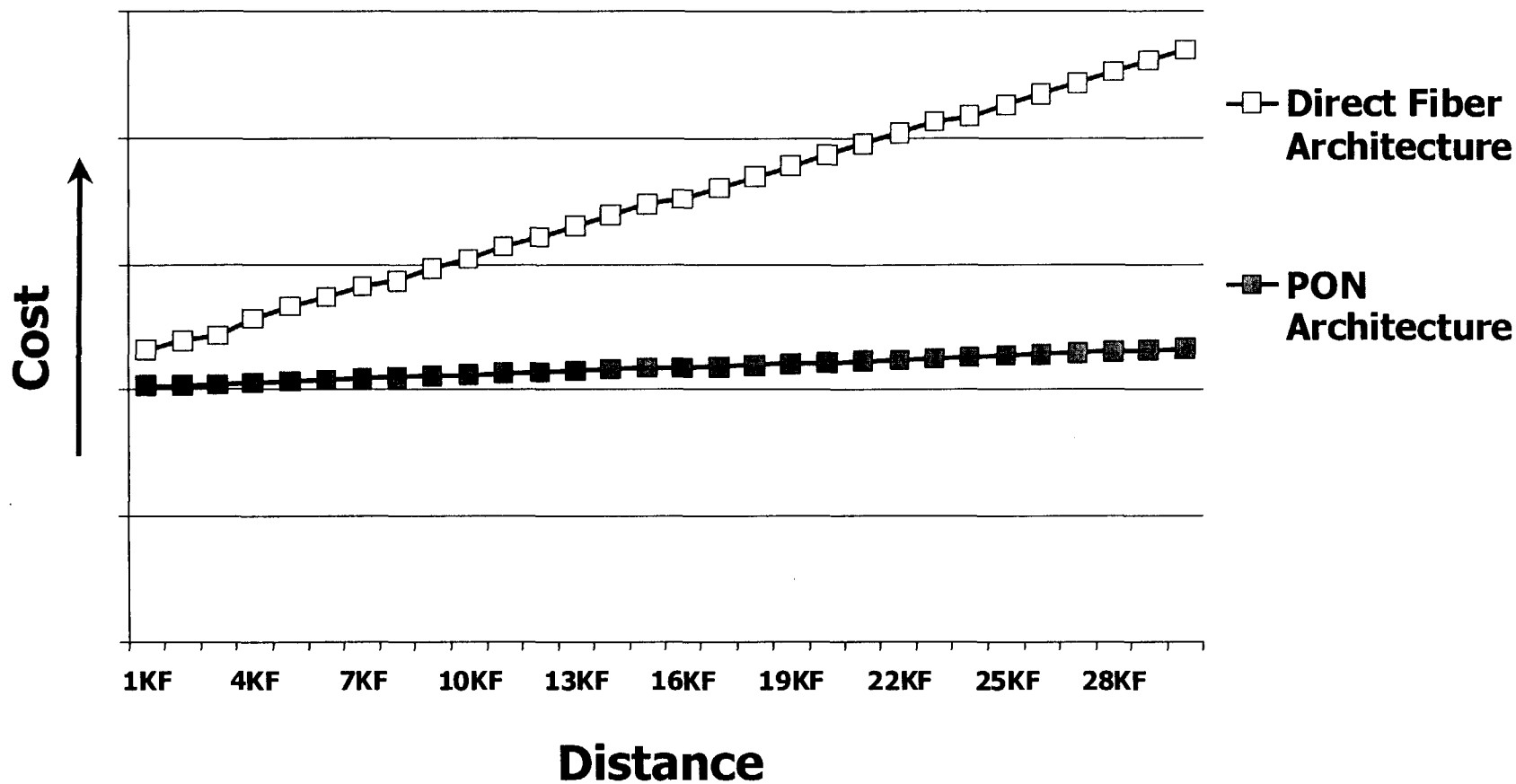


# Why Fiber?



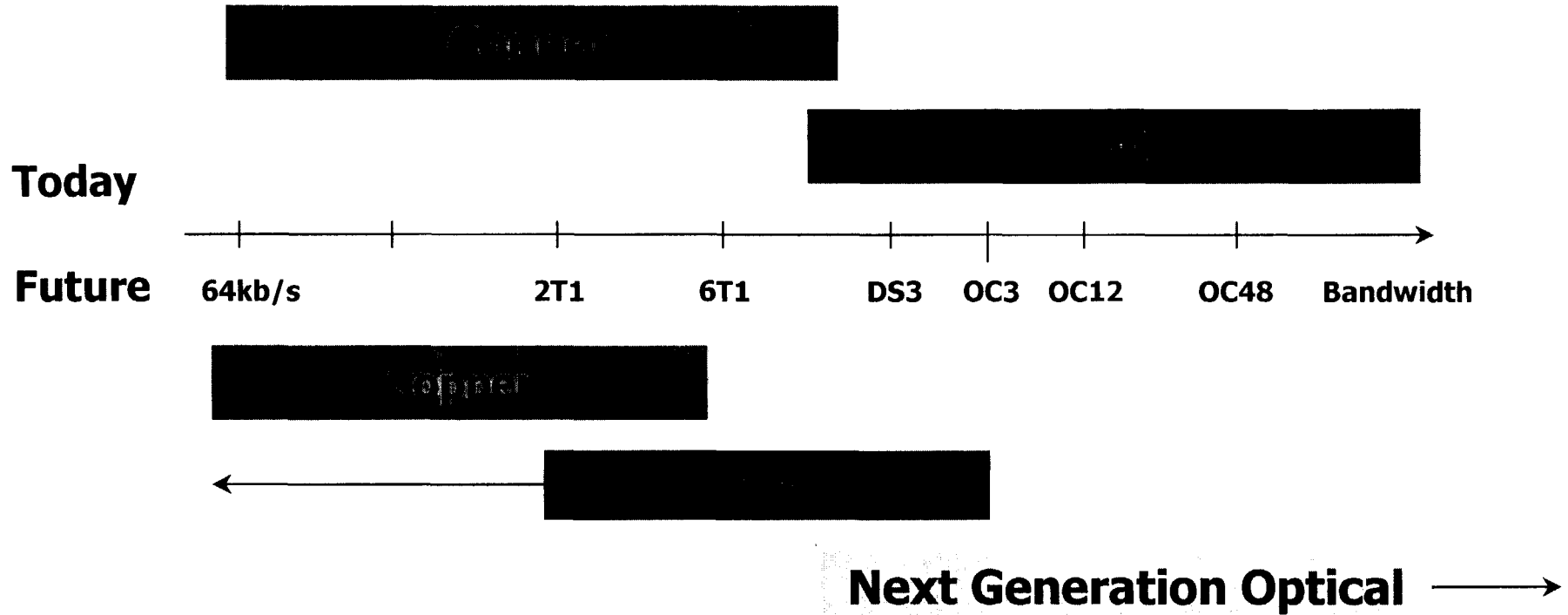


# Why PONs?





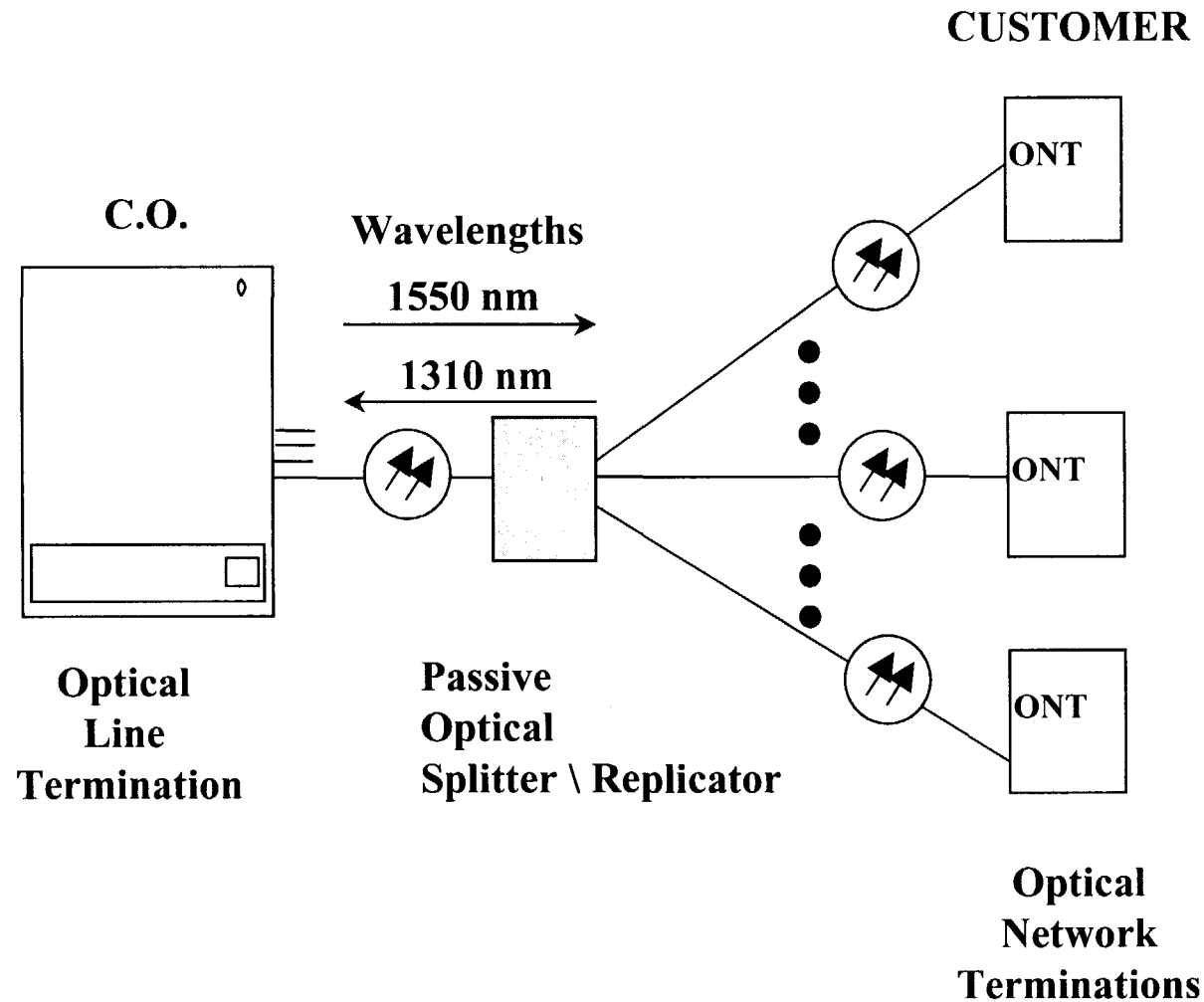
# BPON Fiber-to-the-Business







# BPON Basic Architecture





# Passive Optical Replicator

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100





# BPON Standards: ITU-T G.983

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- Data rates: 155 Mbps upstream, 155 Mb/s or future 622 Mb/s downstream
- Split ratios: Up to 32 ONTs
- Logical reach: 20 km (~60 kilofeet)
- ONT placement: 0 to 20 km
- Splitter placement: 0 to 20 km
- Frame format: Modified ATM cells
- Optical power budget: up to 30 dB
- Wavelengths
  - Upstream: 1310 nanometers
  - Downstream: 1550 nanometers for PON, 1490 nanometers is planned when video is introduced (proposed revisions in G.983.3)

# Wavelength Band Use: Key Points

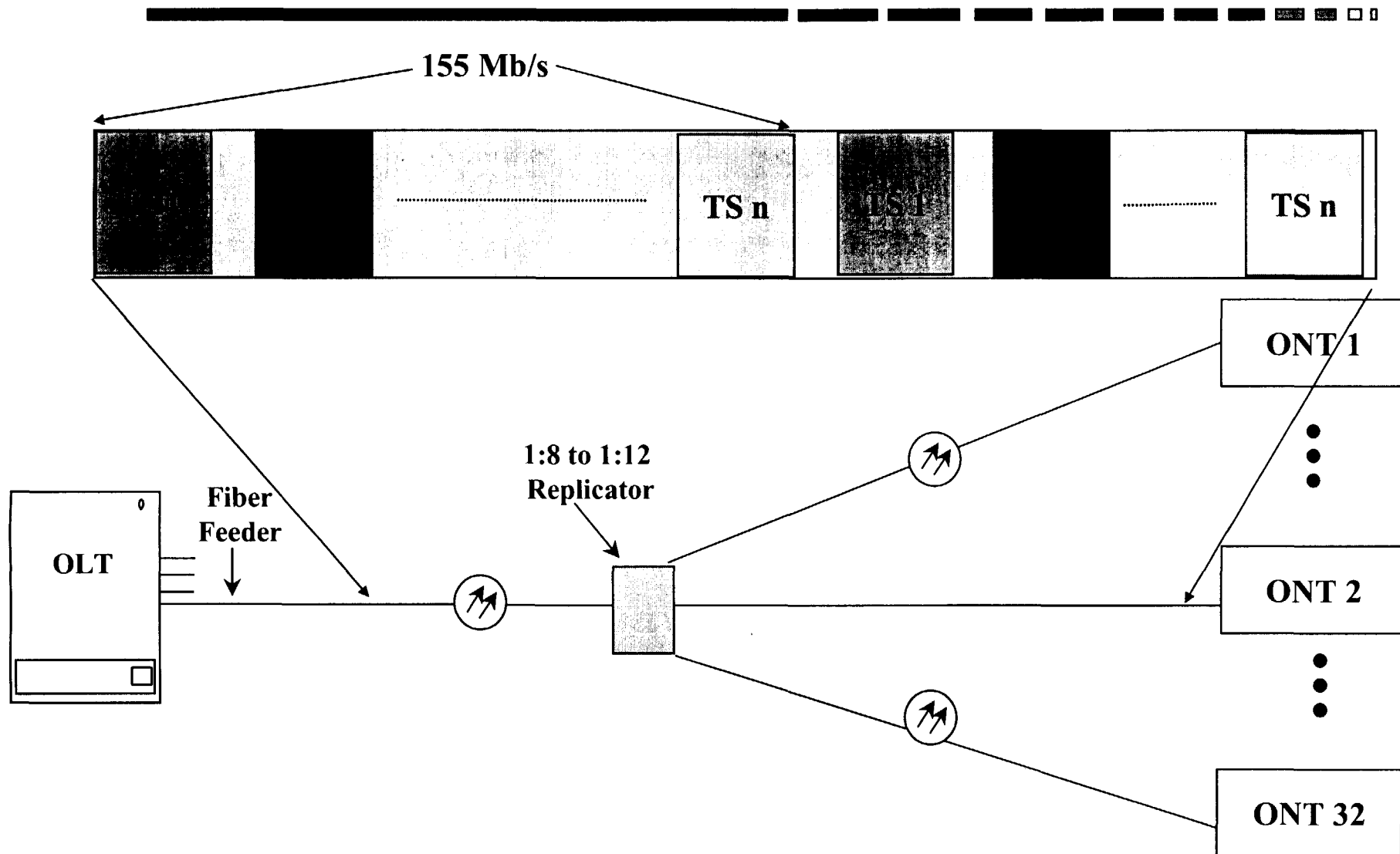
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- Inexpensive optical components will be key to success of BPON
- Single wavelength upstream helps keep ONT optics inexpensive
- Potential dual wavelength downstream helps keep ONT filters inexpensive.



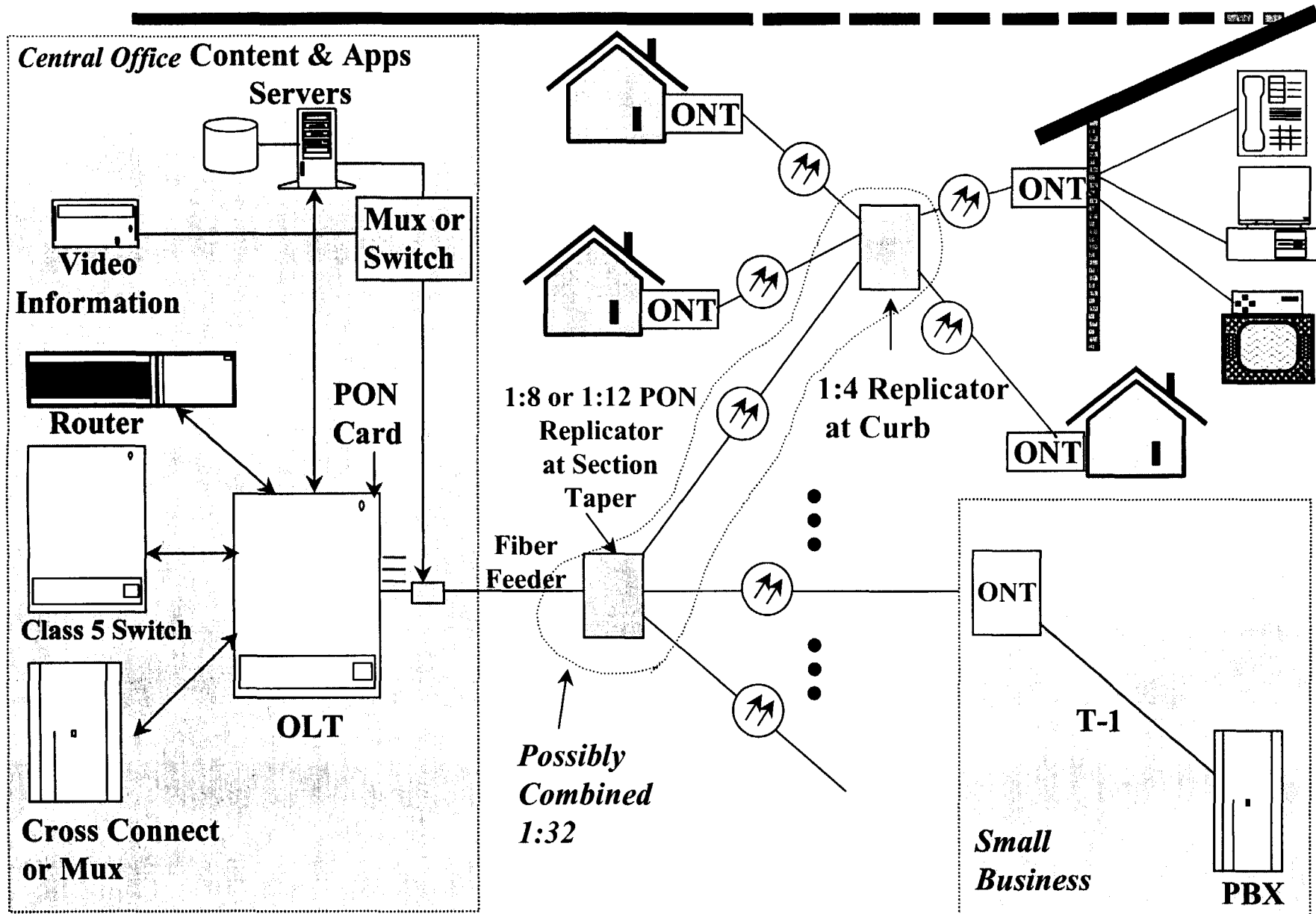
# BPON

Broadcast downstream; TDMA upstream





# BPON - Potential Small Business & Residential Voice, Data, Video Applications





## SBC BPON Current Plans: Business

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- FTTB RFP issued September 1999
- Approval for Use testing through 2000
- Trial in progress
  - Houston, Texas
  - Migrating repeatered copper T1s
- Further deployments contingent upon experience gained
  - Potential to migrate 1000 T1s on BPON in 2001
  - Potential to migrate 9000 additional T1s in 2002



## SBC BPON Current Plans: Residence

---

- RFP issued November 2000
- Vendor selection still in process
- Commitment to provide fiber-based technology for voice and data services to Mission Bay, California development EOY 2002, video in 2004
- BPON may be trialed in additional selected areas
- In general, initial deployments would be primarily for new construction





# BPON Consumer Value Equation

---

## ■ Consumer Benefits

- Increased data capacity
- Potential for new services
- Neighborhood friendly
  - » Upgrades by changing out endpoint electronics
  - » Replicator can be located anywhere in fiber network
- Higher reliability

## ■ Consumer Responsibility

- ONT must be powered (a few watts - less than a 60 watt light bulb) by the customer
- Residential consumer must change backup batteries for ONT



# BPON Summary

---

- BPON is a new technological means to provide services to the mass market
- BPON standards are generally available to the public
- BPON OLTs, ONTs, and the optical replicator constitute an integrated system
- BPON offers the potential for substantial bandwidth capacity increase and new services/choices for consumers



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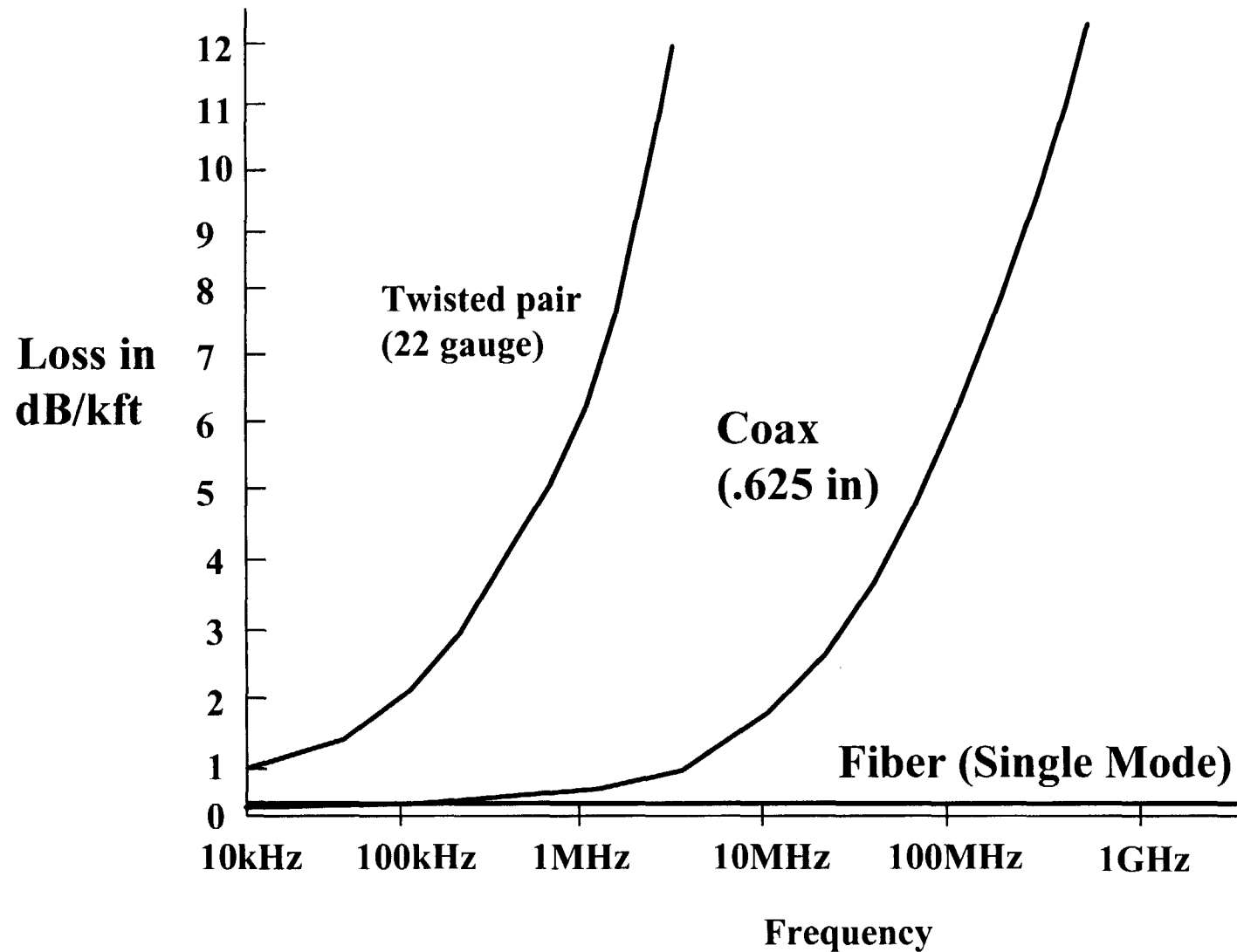
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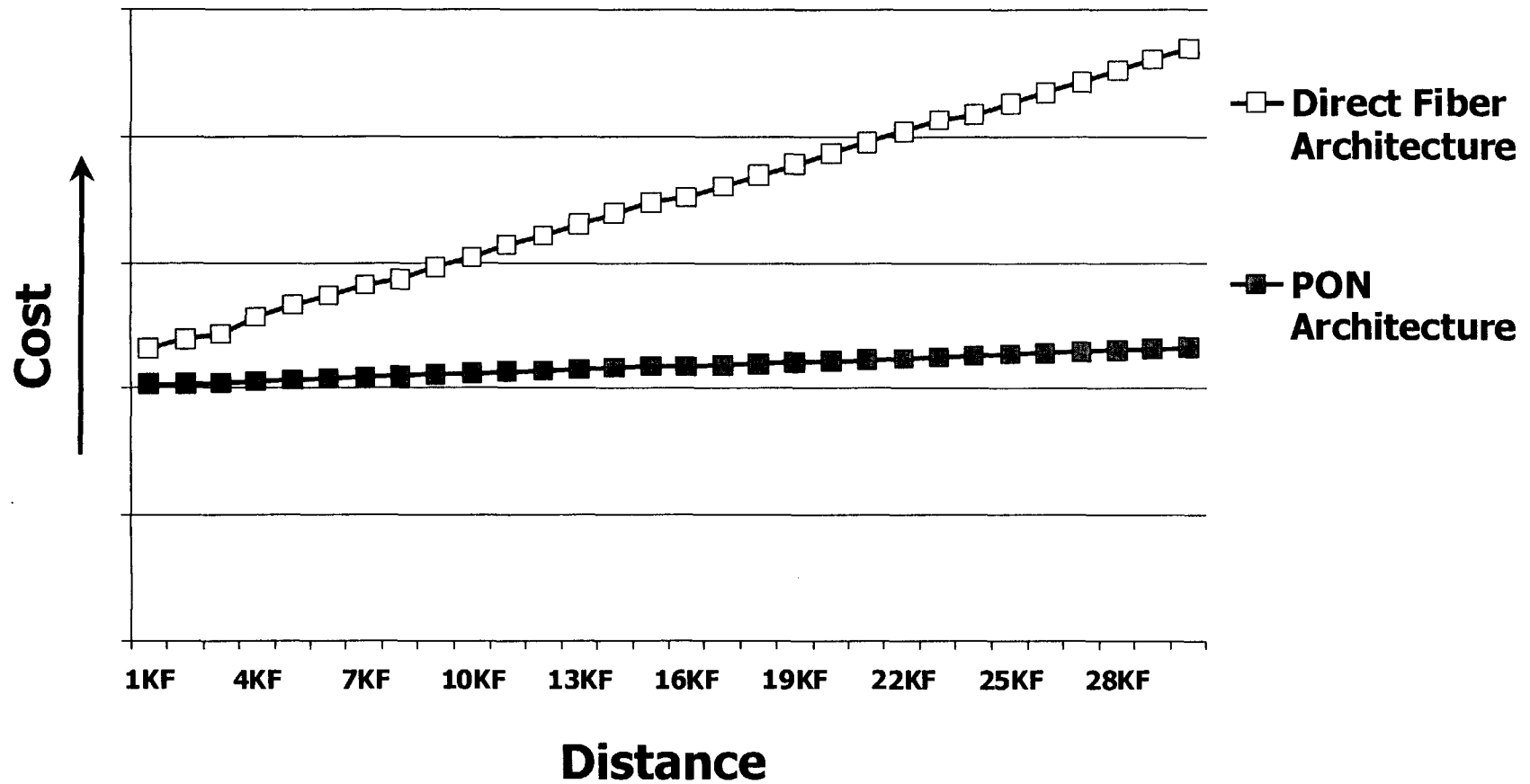


# Why Fiber?



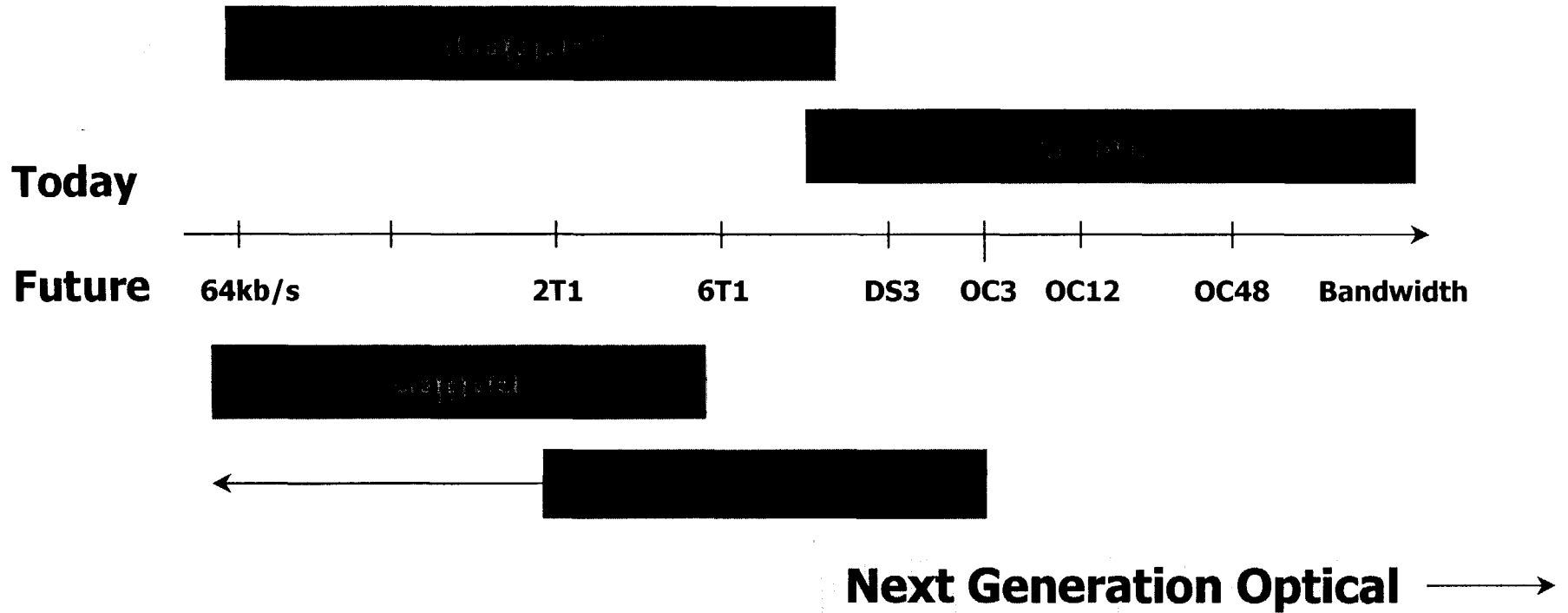


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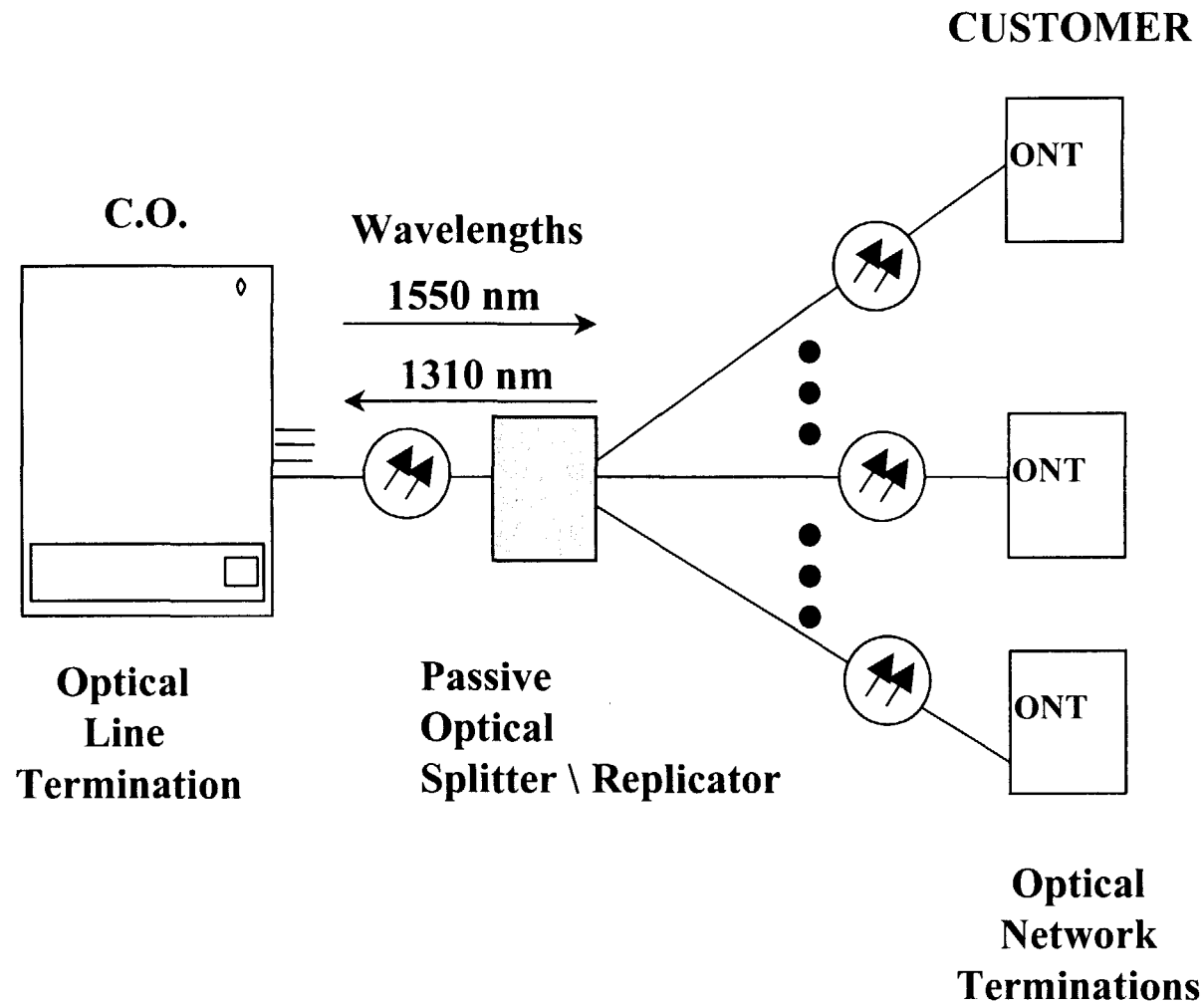
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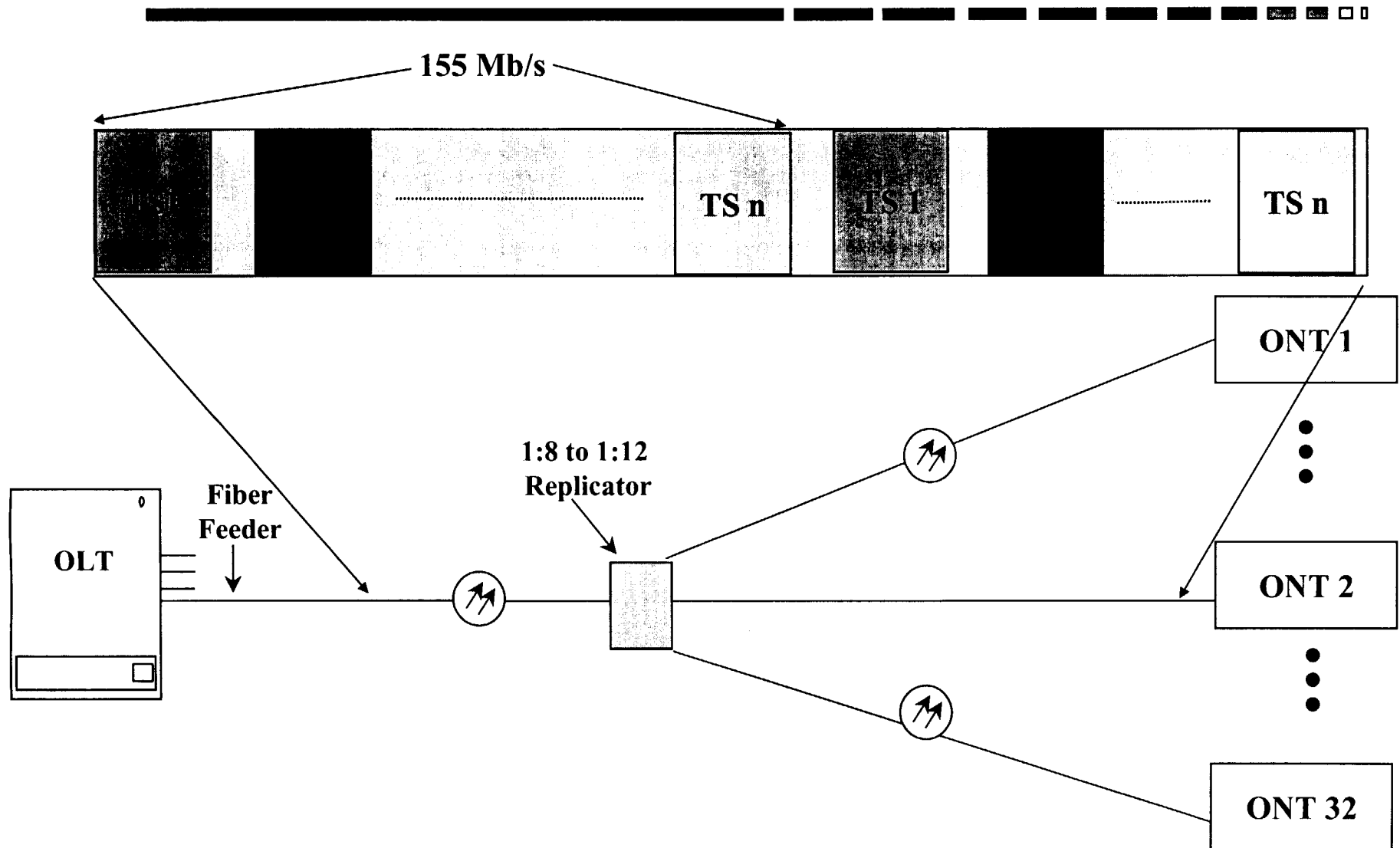
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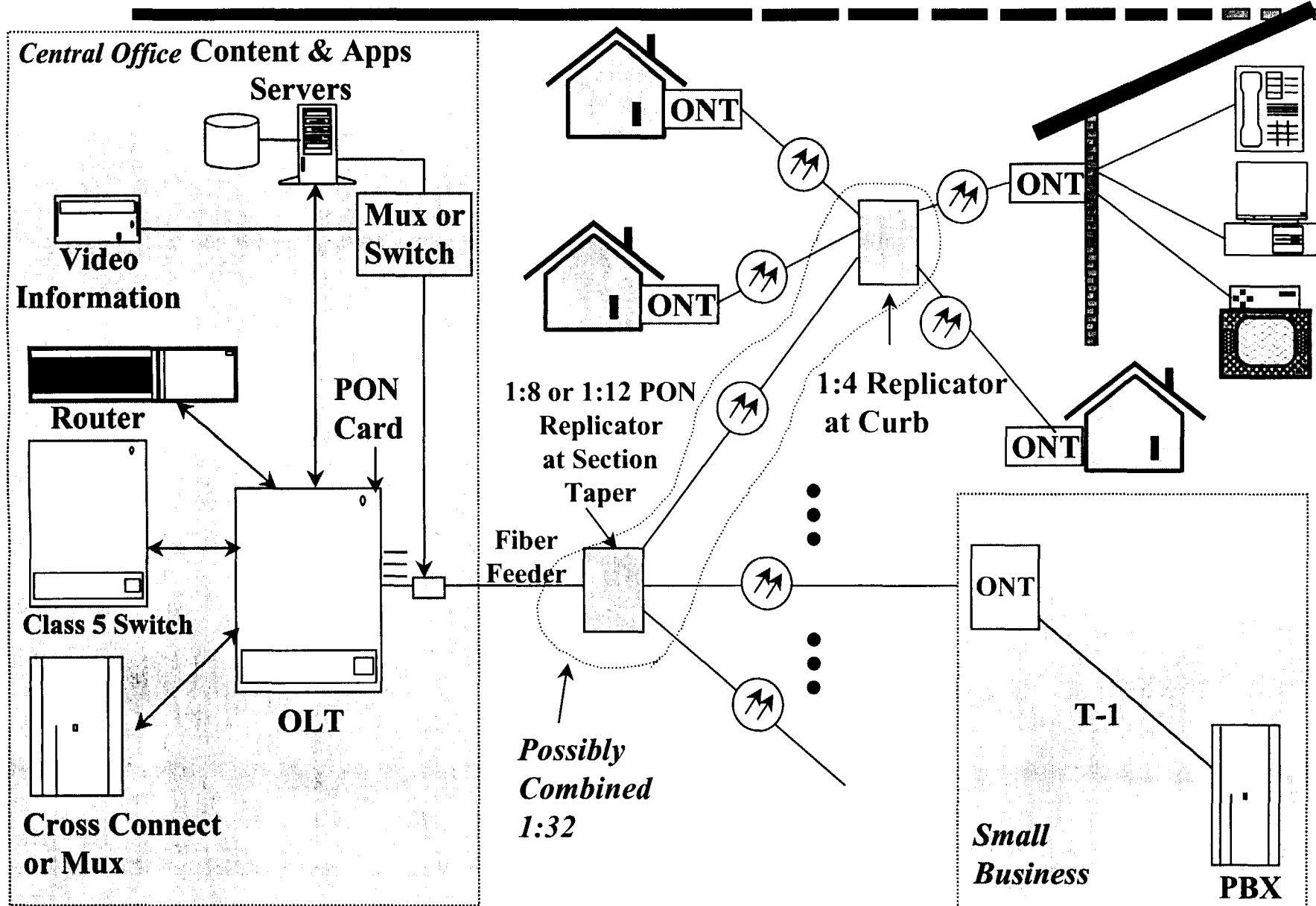
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